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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/852,998	05/10/2001	Bruce J. Chamberlin	FIS920010058US1	5849

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INTERNATIONAL BUSINESS MACHINES CORPORATION  
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2070 ROUTE 52  
HOPEWELL JUNCTION, NY 12533

EXAMINER

DINH, TUAN T

ART UNIT PAPER NUMBER

2827

DATE MAILED: 07/25/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/852,998

Applicant(s)

CHAMBERLIN ET AL.

Examiner

Tuan T Dinh

Art Unit

2827

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 12 April 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-18 and 20-23 is/are pending in the application.
- 4a) Of the above claim(s) 1-9 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 10-18 and 20-23 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Objections*

1. Claim 16 objected to because of the following informalities:

Claim 16, line 2, change "an outer insulating layer" to --an inner insulating layer--.

Appropriate correction is required.

### *Claim Rejections - 35 USC § 102*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 10-11, and 20-23 are rejected under 35 U.S.C. 102(b) as being anticipated by Chartrand et al. (U. S. Patent 5,890,284).

As to claim 10, Chartrand discloses an integral replacement pad/trace structure (10-figure 1, column 2, line 50) for repair or modification of a printed circuit board (38-figures 3-4, column 3, line 26) as shown in figures 1-7 comprising:

a first end (12, column 2, line 52) having shape and dimensions to serve as a replacement contact pad for a predetermined contact pad to be replaced on a printed circuit board (see figure 4F) ;

a second end (28, column 2, line 58) having shape and dimensions predetermined to connect to a desired electrical contact on a printed circuit board; and

a trace portion (14, column 2, line 52) integral with and connecting said first and second ends (12, 28) and having shape and dimensions predetermined to interface to

the circuit geometry of the printed circuit board between the predetermined replaced contact pad and predetermined electrical contact, wherein said integral replacement pad/trace structure comprises an electrically conductive material.

As to claim 11, Chartrand discloses the structure as shown in figures 1-6 wherein said integral replacement pad/trace structure comprises copper foil (column 2, lines 61-62).

As to claim 20, Chartrand discloses a printed circuit board repair structure (10) as shown in figures 1-7 comprising:

- a printed circuit board (38) having at least one layer (see figure 3);

- at least one electrical contact pad (36) on a first surface of said printed circuit board (38),

- at least one conductive through hole (37) electrically connecting said at least one electrical contact pad to one of at least one electrical connection on a second surface of said printed circuit board or said at least one layer of said printed circuit board (see figure 3C); and

- at least one integral replacement pad/trace structure (10) having a first end (12) replacing said at least one electrical contact pad (36), a second end (28) electrically connected to said at least one electrical connection, and a trace portion (14) connecting said first and second end (see figures 1-2), wherein said at least one integral replacement pad/trace structure comprises an electrically conductive material (copper, column 2, lines 61-62) thereby providing a replacement electrical connection on said printed circuit board,

As to claim 21, Chartrand discloses the structure as shown in figures 3-6 further comprising:

at least one replacement repair hole (37) having a diameter sufficient to serve all internal connections of said at least one conductive through hole that said at least one replacement repair hole replaces, and wherein

at least a portion of said at least one integral replacement pad/trace structure (10) passes through at least a portion of said at least one replacement repair hole thereby providing a replacement electrical connection on said printed circuit board.

As to claim 22, Chartrand discloses the structure (10) as shown in figures 3-6 wherein said at least one replacement repair hole (37) further comprises an insulating material (57-figures 4B-4D) surrounding the side walls (plating pad 36) of said at least one replacement repair hole forming a second smaller diameter providing electrical insulation for said at least one integral replacement pad/trace structure,

As to claim 23, Don discloses the structure (10) as shown in figures 3-6 further comprising:

at least one electrical connection (80) on a second surface of said printed circuit board,

the at least one integral replacement pad/trace structure (10) having at least one end connected to said at least one electrical connection on a second surface (see figure 6); and

a custom fabricated insulator having at least one clearance channel to provide clearance around said at least one integral replacement pad/trace structure.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chartrand et al (U. S. Patent 5,890,284) in view of Swiggett et al. (U. S. Patent 4,859,807).

As to claim 12, Chartrand discloses all of the limitations of the claimed invention, except for at least a portion of a bottom surface of said integral replacement pad/trace structure is coated with a heat activated adhesive.

Swiggett shows an integral replacement pad/trace structure (130b, column 23, line 66) is coated with a heat activated adhesive (140b, column 23, lines 66-67).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use an integral replacement pad/trace structure is coated with a heat activated adhesive as taught by Swiggett to employ the structure of Chartrand in order to provide permanently bond conductor(s) (wires) to a board surface.

6. Claims 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chartrand et al. (U. S. Patent 5,890,284) in view of Calhoun et al. (U. S. Patent 4,931,598).

Chartrand does not disclose the structure (10) wherein at least a portion of said first end of said integral replacement pad/trace structure is plated with gold and nickel.

Calhoun shows a wire (10) is plated with gold and nickel (column 5, line 66, column 6, lines 2-6).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use a gold-nickel plating wire as taught by Calhoun to employ the integral replacement pad/trace structure of Chartrand in order to provide a good electrical conductivity of wire structure..

7. Claims 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chartrand et al. (U. S. Patent 5,890,284) in view of Sawada et al. (U. S. Patent 5,151,406).

Chartrand discloses all of the limitations of the claimed invention, except for the structure further comprising:

- an inner insulating layer on at least a portion of said trace portion;
- a conductive layer on the outer surface of said insulating layer, and
- an outer insulating on the outer surface of said conductive layer.

Sawada shows a superconductor wire capable of being used as a replacement pad/trace structure as shown in figure 4 comprising a lamination of an inner insulating layer (6) on at least a portion of said trace portion (4); a conductive layer (7) on the outer surface of said insulating layer (6), and an outer insulating (8; 10) on the outer surface of said conductive layer (7).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use a laminated layers structure as taught by Sawada to employ the replacement structure of Chartrand in order to provide an improved flexiability, good processability, and increase critical current density.

### ***Response to Arguments***

8. Applicant's arguments with respect to claims 10-18, and 20-23 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of



the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

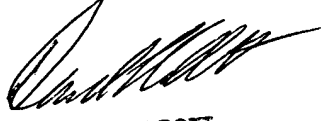
10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Newsam, Badet et al., Plonski, and Chartrand et al. disclose related art.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan T Dinh whose telephone number is 703-306-5856. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David L. Talbott can be reached on 703-305-9883. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-1341 for regular communications and 703-305-1341 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

TD  
July 17, 2002

  
DAVID L. TALBOTT  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2800